

10/728,772

**IN THE CLAIMS:**

Please amend the claims as follows:

1. (Previously presented) A method of forming an interlevel dielectric (ILD) layer, comprising the steps of:
  - forming a polymer sacrificial ILD on a substrate;
  - forming a photomask on the polymer sacrificial ILD;
  - etching recesses in the polymer sacrificial ILD through the photomask;
  - forming metallization structures within the polymer sacrificial ILD while the photomask is on the polymer sacrificial ILD, including depositing copper within the recesses in the polymer sacrificial ILD, and forming a metal cap layer on the copper deposited within the recesses;
  - etching back the polymer sacrificial ILD;
  - non-conformally depositing dielectric material as an ILD layer over the substrate and the metallization structures so as to form air gaps in the ILD layer between at least some of the metallization structures.
2. (Cancelled)
3. (Cancelled)
4. (Previously presented) The method of claim 1, wherein the etching back of the polymer sacrificial ILD is performed while the cap layer is exposed to the etching back process, the cap layer preventing etching of the copper.
5. (Original) The method of claim 4, wherein the cap layer is Ta.

10/728,772

6. (Previously presented) The method of claim 5, wherein the polymer sacrificial ILD is a poly-arylene ether.
7. (Original) The method of claim 6, wherein the dielectric material of the ILD layer is SiO<sub>2</sub> or SiOF.
8. (Original) The method of claim 1, wherein the etching back of the polymer sacrificial ILD is a maskless etching back.
9. (Original) The method of claim 1, wherein the etching back of the polymer sacrificial ILD is a self-aligned process.
10. (Original) The method of claim 6, wherein the dielectric material of the ILD layer is an ultra low k dielectric layer having a dielectric constant less than 2.5.
11. (Previously presented) A method of forming an interconnect structure, comprising the steps of:  
forming a polymer interlayer dielectric (ILD) layer on a substrate;  
forming a photomask on the polymer ILD layer;  
etching recesses in the polymer ILD layer through the photomask;  
forming metal lines within the polymer ILD layer, the metal lines being capped with a cap layer while the photomask is on the polymer ILD layer;  
removing the photomask;  
etching back the polymer ILD layer; and  
forming a second ILD layer on the substrate.

10/728,772

12. (Original) The method of claim 11, wherein the step of forming a second H.D layer includes non-conformally depositing dielectric material over the metal lines and the substrate, the non-conformally depositing forming air gaps in the dielectric material between at least some of the metal lines.

13. (Original) The method of claim 12, wherein the metal lines comprise copper and the cap layer comprises tantalum.

14. (Previously presented) The method of claim 11, wherein the step of forming a second H.D layer includes depositing ultra low k dielectric material on the substrate and between the metal lines.

15. (Original) The method of claim 14, wherein the metal lines comprise copper and the cap layer comprises tantalum.

16. (Original) The method of claim 11, wherein the etching back of the polymer H.D layer is a maskless etching, with a top surface of the cap layer and the polymer H.D layer being free of mask material.

17. (Original) The method of claim 16, wherein the metal lines comprise copper and the cap layer comprises tantalum.